

21 FUNCTIONS; 64 RANGES

Model KM 829

IP54

CAT IV
1KV



SPECIAL FEATURES :

- Beep-Jack Audible & Visible Input Warning
- Auto-Ranging
- Relative Zero Mode
- PC Interface Capability
- AutoCheck V-Ω; Auto-Ranging
- Crest (Instantaneous Peak Hold)
- T1-T2 differential Temperature readings.
- Data Hold

FEATURES :

- DC Voltage Basic Accuracy 0.08%
- AC; AC+DC True RMS Conversion Frequency Bandwidth upto 20kHz (V) & 1kHz (A)
- 4 Digit 10,000 counts large easy to read Backlight LCD display
- Fast Measurements, 5/sec; Fully Auto-Ranging
- Record Max/Min readings, Auto Ranging
- NCV & Probe-Contact EF-Detection
- dBm function with 20 selectable values
- Lo-Z volts to drain Ghost Voltages (AutoCheck Feature)
- Logic & Line Level Frequency
- Logic Level Duty Cycle Readings & Diode Tester
- Fast Audible Continuity
- Auto Power Off



ACCESSORIES :

Test lead pair, Battery installed, User Manual, One BKP60 banana plug type-K Thermocouple.

OPTIONAL ACCESSORIES :

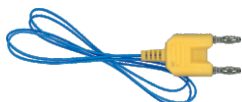
USB interface kit BU-82X; BMH-01 Magnetic Hanger; BKB32 banana plug to type-K socket plug adaptor. Current Clamp CA300, Current Clamp Adaptor CA500, CA1000, CA2000, High Voltage Probe PD-28.



Software CD



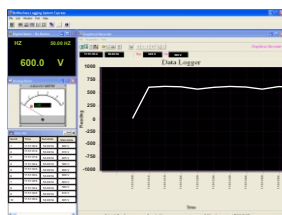
Fuse



Thermocouple



Magnetic Hanger



Software



Software Cable



GENERAL SPECIFICATIONS

- * **Sensing** : AC, AC+DC True RMS
- * **Display** :
9999 Counts : ACV, DCV, Hz & nS
6000 Counts : mV, μ A, mA, A, Ohm & Capacitance
- * **Update Rate** :
Digital Display : 5 per second nominal;
41 Segments Bar-graph : 60 per second max
- * **Low Battery** : Below approx 7V
- * **Operating Temperature** : 0°C to 45°C
- * **Relative Humidity** : Max. 80% R.H. for Temperature up to 31°C decreasing linearly to 50% R.H. at 45°C
- * **Pollution degree** : 2
- * **Storage Temperature** : -20°C to 60°C, <80% R.H. (with battery removed)
- * **Altitude** : Operating below 2000m
- * **Temperature Coefficient** : nominal 0.15 x (specified accuracy)/°C @ (0°C ~ 18°C or 28°C ~ 45°C), or otherwise specified
- * **Power Consumption** : 5mA typical
- * **APO Timing** : Idle for 30 minutes
- * **APO Consumption** : 50 μ A typical
- * **Power Supply** : Single 9V battery
- * **Weight** : Approx. 635gm with holster
- * **Dimension** : 208(L) x 103(W) x 64.5(H) mm

SAFETY :

- Double insulation per IEC/UL/EN61010-1 Ed. 3.0, IEC/EN61010-2-030 Ed. 1.0, IEC/EN61010-2-033 Ed. 1.0, IEC/UL/EN61010-031 Ed. 1.1 and CAN/CSA-C22.2 No. 61010-1-12 Ed. 3.0 to Cat IV 1000V AC & DC.
- **Transient Protection** : 12 kV (1.2/50 μ s surge)
- **Terminals (to COM) Measurement Category** :
V/A/mA/ μ A : Category IV 1000VAC & DC
- **Overload Protection** :
 μ A & mA : 0.44A / 1000V DC/AC rms, IR 10kA, F fuse
A : 11A / 1000V DC/AC rms, IR 20kA, F fuse
V : 1100V DC/AC rms
mV, Ω , & others : 1000V DC/AC rms
- **EMC** : Meets EN61326-1:2006 (EN55022, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11)
In an RF field of 3V/m :
Capacitance function is not specified
Other function ranges :
Total Accuracy = Specified Accu. + 100 dgts
Performance above 3V/m is not specified.
- Rugged fire retarded casing with battery access door
- Replaceable protective holster with probe-holders & Tilt-stand.
- 600V (Ohm, Capacitance & all other Functions) Input protection.
- 600V High Breaking Capacity fuses protection on Current inputs.
- LVD meets EN61010-1 CAT IV 1kV.

All Specifications are subject to change without prior notice

ELECTRICAL SPECIFICATIONS : KM 829

Accuracy is (% readings digits + number of digits) or otherwise specified, at 23°C ± 5°C & less than 75% relative humidity. True RMS Voltage & Current accuracies are specified from 10% to 100% of range or otherwise specified. Maximum Crest Factor < 3:1 at full scale & < 6:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

AC VOLTAGE

Range	Resolution	Accuracy
50Hz ~ 60Hz		
60.00 mV	0.01 mV	±(0.5% rdg + 3 dgts)
600.0 mV	0.1 mV	
9.999 V	1 mV	
99.99 V	10 mV	
999.9 V	100 mV	
40Hz ~ 500Hz		
60.00 mV	0.01 mV	±(0.8% rdg + 4 dgts)
600.0 mV	0.1 mV	
9.999 V	1 mV	±(1.0% rdg + 4 dgts)
99.99 V	10 mV	
999.9 V	100 mV	±(2.0% rdg + 4 dgts)
500Hz ~ 1kHz		
60.00 mV	0.01 mV	±(2.0% rdg + 3 dgts)
600.0 mV	0.1 mV	
9.999 V	1 mV	±(1.0% rdg + 4 dgts)
99.99 V	10 mV	
999.9 V	100 mV	±(2.0% rdg + 4 dgts)
1kHz ~ 3kHz		
60.00 mV	0.01 mV	±(2% rdg + 3 dgts)
600.0 mV	0.1 mV	
9.999 V	1 mV	±(3.0% rdg + 4 dgts)
99.99 V	10 mV	
999.9 V	100 mV	
3kHz ~ 20kHz		
60.00 mV ⁽¹⁾	0.01 mV	±(2% rdg + 3 dgts)
600.0 mV ⁽¹⁾	0.1 mV	
9.999 V ⁽²⁾	1 mV	3dB
99.99 V	10 mV	3dB
999.9 V	100 mV	Unspec'd

¹⁾ Specified from 30% to 100% of range.

²⁾ For 3kHz ~ 15kHz only

Input Impedance : 10MΩ, 50pF nominal
(80pF nominal for 600mV range)

DC VOLTAGE

Range	Resolution	Accuracy
60.00 mV	0.01 mV	±(0.12%rdg + 2dgts)
600.0 mV	0.1 mV	±(0.06%rdg + 2dgts)
9.999 V	1 mV	±(0.08%rdg + 2dgts)
99.99 V	10 mV	
999.9 V	100 mV	

Input Impedance : 10MΩ, 50pF nominal
(80pF nominal for 600mV range)

AC & AC+ DC CURRENT

Range	Resolution	Accuracy	Burden Voltage
50Hz ~ 60Hz			
600.0 μA	0.1 μA	±(0.6%rdg + 3dgts)	0.08mV / μA
6000 μA	1 μA		
60.00 mA	0.01 mA		±(1.0%rdg + 3dgts)
600.0 mA	0.1 mA		
6.000 A	0.001 A	±(0.8%rdg + 6dgts)	0.02V / A
10.00 A ¹⁾	0.01 A		
40Hz ~ 1kHz			
600.0 μA	0.1 μA	±(0.8%rdg + 4dgts)	0.08mV / μA
6000 μA	1 μA		
60.00 mA	0.01 mA		±(1.0%rdg + 4dgts)
600.0 mA	0.1 mA		
6.000 A	0.001 A	±(0.8%rdg + 6dgts)	0.02V / A
10.00 A ¹⁾	0.01 A		

¹⁾ 10A continuous, > 10A to 20A for 30 second max with 5 minutes cool down interval

DC CURRENT

Range	Resolution	Accuracy	Burden Voltage
600.0 μA	0.1 μA	±(0.2% rdg + 4 dgts)	0.08mV / μA
6000 μA	1 μA		2.1mV / mA
60.00 mA	0.01 mA		
600.0 mA	0.1 mA		0.02V / A
6.000 A	0.001 A		
10.00 A ¹⁾	0.01 A		

¹⁾ 10A continuous, > 10A to 20A for 30 second max with 5 minutes cool down interval

CAPACITANCE

Range	Accuracy ¹⁾
60.00nF, 600.0nF	0.8% + 3d
6.000μF	1.0% + 3d
60.00μF	2.0% + 3d
600.0μF ²⁾	3.5% + 5d
6.000mF ²⁾	5.0% + 5d
25.00mF ²⁾	6.5% + 5d

¹⁾ Accuracies with film capacitor or better

²⁾ In manual-ranging mode, measurements not specified below 50.0μF, 0.54mF and 5.4mF for 600.0μF, 6.000mF and 25.00mF ranges respectively.

RESISTANCE (OHMS)

Range	Resolution	Accuracy
600.0 Ω	0.1 Ω	±(0.1%rdg + 3dgts)
6.000 kΩ	0.001 kΩ	
60.00 kΩ	0.01 kΩ	
600.0 kΩ	0.1 kΩ	
6.000 MΩ	0.001 MΩ	±(0.4%rdg + 3dgts)
60.00 MΩ	0.01 MΩ	±(1.5%rdg + 5dgts)

Open Circuit Voltage : < 1.2VDC (<1.0VDC for 60MΩ range)

All specifications are subject to change without prior notice.

ELECTRICAL SPECIFICATIONS : KM 829

AUTOCHECK™ (DCV)

Range	Resolution	Accuracy
9.999 V	0.001 V	±(0.5%rdg + 3dgt)
99.99 V	0.01 V	
999.9 V	1 V	

Lo-Z DCV Threshold : >+1.5 VDC or < -1.0VDC nominal

Lo-Z DCV Input Impedance : Initially approx. 3.0kΩ, 165pF nominal; Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical).

Ended up impedances vs display voltages typically are:

18kΩ @ 100V 125kΩ @ 300V
320kΩ @ 600V 500kΩ @ 1000V

AUTOCHECK™ (ACV)

Range	Resolution	Accuracy
50Hz ~ 60Hz		
9.999 V	0.001 V	±(1.0%rdg + 4dgt)
99.99 V	0.01 V	
999.9 V	1 V	

Lo-Z ACV Threshold : >3VAC (50/60Hz)nominal

Lo-Z ACV Input Impedance : Initially approx. 3.0kΩ, 150pF nominal Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are:

18kΩ @100V 125kΩ @300V
320kΩ @600V 460kΩ @1000V

AUTOCHECK™ (RESISTANCE)

Range	Resolution	Accuracy
600.0 Ω	0.1 Ω	±(0.5%rdg + 4dgt)
6.000 kΩ	0.001 kΩ	
60.00 kΩ	0.01 kΩ	
600.0 kΩ	0.1 kΩ	
6.000 MΩ	0.001 MΩ	±(0.8%rdg + 3dgt)
60.00 MΩ ¹⁾	0.01 MΩ	±(2.0%rdg + 5dgt)

¹⁾Temperature Coefficient 0.6 x (specified accuracy) / °C @ (0°C ~ 18°C or 28°C ~ 45°C)

Open Circuit Voltage : < 1.2VDC (<1.0VDC for 60MΩ range)

CONDUCTANCE

Range	Resolution	Accuracy
99.99nS	0.01 nS	±(0.8%rdg + 10dgt)

Open Circuit Voltage : < 1.2VDC (<1.0VDC for 60MΩ range)

AUDIBLE CONTINUITY TESTER

Audible threshold	Between 20Ω and 300Ω
Response time	< 100μs

dBm

At 600Ω, -11.76 dBm to 54.25 dBm,
Accuracy : ± 0.25dB + 2d (@40Hz -- 20kHz)
Input Impedance : 10MΩ, 50pF nominal
Selectable reference impedance of 4, 8, 16, 32, 50, 75, 93, 110, 125, 135, 150, 200, 250, 300, 500, 600, 800, 900, 1000, 1200Ω.

LINE LEVEL FREQUENCY (Hz)

Function Range	Frequency	Sensitivity (sine Rms)
AC 60.00mV	15.00 ~ 50.00kHz	40mV
AC 600.0mV		60mV
AC 9.999V	15.00 ~ 10.00kHz	2.5V
AC 99.99V		25V
AC 999.9V		100V
AC 600.0μA	15.00 ~ 3.000kHz	45μA
AC 6000μA		600μA
AC 60.00mA		40mA
AC 600.0mA		60mA
AC 6.000A		4A
AC 10.00A		6A

Accuracy : 0.04% + 4d

NON-CONTACT EF-DETECTION

Typical Voltage	Bar Graph Indication
20V (tolerance : 10V ~ 36V)	—
55V (tolerance : 23V ~ 83V)	— —
100V (tolerance : 59V ~ 165V)	— — —
220V (tolerance : 124V ~ 330V)	— — — —
440V (tolerance : > 250V)	— — — — —

Indication : Bar graph segments & audible beep tones proportional to the field strength.

Detection Frequency : 50/60 Hz

Detection Antenna : Top end of the meter

Probe-Contact EF-Detection : For more precise indication of live wires, such as distinguishing between live and groundconnections, use the Red(+) test measurements.

LOGIC LEVEL FREQUENCY (μHz) & DUTY CYCLE (D%)

@DCmV Function	Range	Accuracy ¹⁾
Frequency	5.00Hz ~ 1.000MHz	±(0.004%rdg + 4dgt)
Duty Cycle	0.00% ~ 100.0%	±(3d/kHz + 2d ²⁾)

¹⁾ Sensitivity : 2.5Vp (Square wave) for 3V & 5V Logic Family

²⁾ Specified Frequency : 5Hz ~ 10kHz

TEMPERATURE (K-Type Thermocouple)

Range	Accuracy
-50°C to 1000°C	±(0.3% + 2°C)
-58°F to 1832°F	±(0.3% + 5°F)

Type-K thermocouple range & accuracy not included.

Supplied thermocouple suitable for measurement upto 250°C.

DIODE TESTER

Range	Accuracy
2.000V	±(1.0%rdg + 1dgt)

Test Current (Typically) : 0.4mA

Open Circuit Voltage : < 3.5V DC

CREST MODE (INSTANTANEOUS PEAK HOLD)

Accuracy :
Specified accuracy adds 250 digits for changes > 1.0ms in duration

All specifications are subject to change without prior notice.